Chronic Energy Deficiency in Pregnant Women: A Case Study in the Sawa Community Health Center Area, North Konawe Regency

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ABSTRACT

Chronic energy deficiency (CED) is one of the nutritional problems commonly found in pregnant women in Indonesia, which can affect the health of the mother and fetus. CED in pregnant women is associated with various factors, including the mother's age and parity. At the Sawa Community Health Center in North Konawe Regency, the prevalence of CED in pregnant women is still quite high. This study aims to analyze the relationship between maternal age and parity with the incidence of CEE in pregnant women at the Sawa Community Health Center in North Konawe Regency. This study used a quantitative research design with a cross-sectional approach. This study was conducted in the working area of the Abuki Community Health Center, from July 4, 2025, to August 2, 2025. The population in this study consisted of all 222 pregnant women in the working area of the Abuki Community Health Center from January to April 2025, with a sample size of 158 respondents. The sampling technique used in this study was accidental sampling. Data analysis was performed using the Chi-Square statistical test with a significance level of p-value 0.05. The results of the chi-square statistical test on the variable of maternal age obtained a p-value of 0.033 and parity obtained a p-value of 0.000. There was a relationship between maternal age and the occurrence of chronic energy deficiency in pregnant women, and there was no relationship between parity and the occurrence of chronic energy deficiency in pregnant women. Therefore, more intensive prevention and intervention efforts need to be focused on this group of pregnant women to prevent CED and improve the health of mothers and fetuses..

Keywords : pregnant women, grandma, parity, age

INTRODUCTION

Chronic Energy Deficiency (CED) is one of the nutritional problems commonly found in pregnant women, which can have adverse effects on the health of both the mother and the fetus. CED in pregnant women can cause various complications, such as premature birth, low birth weight (LBW), and an increased risk of maternal and infant mortality[1]. Therefore, preventing KEK is very important to improve the health of pregnant women and ensure optimal fetal development. In Indonesia, KEK in pregnant women remains a health issue that requires special attention, especially in areas with limited access to health services.[2].

According to data from the World Health Organization (WHO), approximately 1 in 5 pregnant women in developing countries suffer from KEK. In Asia, particularly in countries such as India, Indonesia, and the Philippines, the prevalence of KEK in pregnant women remains quite high, with approximately 30% to 40% of pregnant women affected[3].

Based on data from the 2018 Basic Health Research (Riskesdas), the prevalence of KEK in pregnant women was recorded at 17.3%. Meanwhile, data from the 2023 Indonesian Health Survey (SKI) shows a prevalence of 16.9% for pregnant women experiencing KEK[4]. Further historical data shows that in 2007, the prevalence of KEK risk among pregnant women in Indonesia reached *approximately* 21.6% based on upper arm circumference (LILA) < 23.5 cm[5].

Data from the Southeast Sulawesi Provincial Health Office shows a significant increase in cases of chronic energy deficiency (CED) in pregnant women. In 2021, there were 2,119 cases, which then decreased in 2022 to 2,063 cases. However, this number increased dramatically to 7,964 cases in 2023[6].

Data from the North Konawe District Health Office shows an increase in cases of Chronic Energy Deficiency (CED) in pregnant women. In 2021, there were 812 cases, then decreased in 2022 to 795 cases. However, in 2023 there was an increase in cases to 950 cases[7].

Several factors can influence the incidence of KEK in pregnant women, including maternal age and parity. Maternal age refers to the age of the mother during pregnancy, where both young and older ages are at high risk for nutritional disorders during pregnancy. Mothers who are very young (under 20 years old) or older (over 35 years old) often have difficulty meeting the nutritional needs of their bodies during pregnancy. Parity, which is the number of pregnancies a mother has had, is also related to the nutritional status of pregnant women. Mothers with high parity, especially those who have had several children, are more prone to KEK because their bodies may be exhausted or lack nutritional reserves from previous pregnancies[8].

Another study conducted by Lorenza et al. (2025) showed that multiparous and primiparous respondents (those who already had children) in the case group accounted for 76.9%, which was higher than in the control group, which accounted for 51.3%. From the chi-square test results, a p-value of 0.034 was obtained, indicating that there was a relationship between parity and the incidence of KEK in pregnant women[9].

Data from the Sawa Community Health Center shows that the number of cases of chronic energy deficiency (CED) in pregnant women in the Abuki Community Health Center working area in 2023 was 39 people, in 2024 it was 35 people, and in the period from January to April 2025, there were 18 pregnant women who experienced CED[10].

This data shows that KEK cases in pregnant women remain a health problem in the Abuki Community Health Center working area. Although there was a decline from 2023 to 2024, the number of cases in the January to April 2025 period has reached 18 cases. This indicates that the rate of KEK cases in pregnant women in early 2025 has the potential to approach or even exceed the total number of cases in previous years if this trend continues..

The Sawa Community Health Center in North Konawe Regency is one of the health facilities that provides services to pregnant women in the region. Although various efforts have been made to improve the nutritional status of pregnant women, the prevalence of KEK in this area is still quite high. Therefore, research on the relationship between maternal age, parity, and the incidence of KEK in pregnant women at the Sawa Community Health Center in North Konawe Regency is very important to conduct. This study aims to determine whether there is a significant relationship between maternal age and parity with the incidence of KEK in pregnant women, as well as to provide useful recommendations for planning maternal health policies at the Sawa Community Health Center.

METHODS

The type of research used was quantitative research using a cross-sectional approach, which examined the causal relationship between independent variables (maternal age and parity) and dependent variables (the occurrence of KEK in pregnant women) determined observationally. This research was conducted in the working area of the Sawa Community Health Center in North Konawe Regency, from July 4, 2025, to August 2, 2025.

The population in this study consisted of all 222 pregnant women in the Sawa Community Health Center working area from January to April 2025, with a sample size of 158 respondents. The primary data in this study was collected using a questionnaire with a number of written questions to obtain information from respondents after first providing a brief explanation of the examination to be conducted and requesting the respondents' consent to be included in the research sample. Meanwhile, the secondary data in this study was data on the number of pregnant women and cases of KEK in pregnant women in the working area of the Sawa Community Health Center. The sampling technique used in this study was

accidental sampling. The inclusion criteria used in this study were pregnant women aged 15-45 years with a gestational age of more than 14 weeks (third trimester).

The data collection technique used in this study was researcher visits to distribute questionnaires, a well-structured list of questions, and direct observation of pregnant women in the working area of the Sawa Community Health Center. Data analysis in this study used the chi-square statistical test with a statistical significance level of Sig-α (0.05). If the calculation results show a p-value < (0.05), then (Ho) is rejected and Ha is accepted, meaning that the two variables have a statistically significant relationship.

RESULTS

Respondent Characteristics

Table 1. Distribution of Respondent Characteristics According to Maternal Age, Parity, and Upper Arm Circumference in Pregnant Women at the Sawa Community Health Center, North Konawe Regency

Respondent Characteristics	Number (n)	Percentage (%)
Mother's age		
≤ 19 years old	50	31,6
20 – 35 years old	84	53,2
≥ 36 years old	24	15,2
Level of education		
Elementary school	25	15,8
Junior high school	55	34,8
Senior high school	63	39,9
Bachelor	15	9,5
upper arm circumference		
< 23,5 centimeters	67	42,4
≥ 23,5 centimeters	91	57,6
Total	**158**	**100**

Source: Primary Data, 2025

Based on Table 1 above, it shows that most respondents were aged 20–35 years old, totaling 21 (56.8%) respondents, with parity < 2 children totaling 22 (59.5%), and LILA ≥ 23.5 cm totaling 20 (54.1%).

The Relationship between Age and Parity with the Incidence of Chronic Energy Deficiency in Pregnant Women

Table 2. Relationship between Maternal Age and Parity with the Occurrence of Chronic Energy Deficiency in Pregnant Women at the Sawa Community Health Center

Variable	Occurrence of Chronic Energy Deficiency				Total		p-value
	Yes		No				
	n	%	n	%	n	%	
Mother's age							
Risk	38	51,4	36	48,6	74	100	0,033
No risk	29	34,5	55	65,5	84	100	
Parity							
Yes	47	58,8	33	41,3	80	100	0,000
No	20	25,6	58	74,4	78	100	
Total	**67**	**42,4**	**91**	**57,6**	**158**	**100**	

Source: Primary Data, 2025

Based on the results of the data analysis, there is a significant relationship between maternal age and parity with the incidence of Chronic Energy Deficiency (CED) in pregnant women at the Sawa Community Health Center, North Konawe Regency. In the group of mothers with risky ages, which were more commonly found in pregnant women with CED (51.4%), compared to pregnant women who did not experience CED (48.6%). This group showed a p-value of 0.033, which means that there is a significant relationship between maternal age and the incidence of CEM. Conversely, in the non-risk group, more pregnant women did not experience CEM (65.5%), with the same p-value (0.033), indicating a significant relationship.

In addition, analysis based on parity also shows a highly significant relationship between the number of children and the incidence of KEK. Among mothers with high parity (more children), 58.8% of pregnant women experienced KEK, while 41.3% did not. Meanwhile, among mothers with low parity, only 25.6% experienced KEK, and 74.4% did not experience KEK. The p-value for the relationship between parity and KEK is very small, namely 0.000, which indicates a very significant relationship. Overall, this study shows that both age and parity factors affect the risk of chronic energy deficiency in pregnant women, with older mothers and those with more children tending to be at greater risk of experiencing KEK.

DISCUSSION
The relationship between maternal age and chronic energy deficiency in pregnant women

From the table provided, it can be seen that in the group of pregnant women at risk for KEK, 51.4% of mothers experienced KEK (n=38) and 48.6% did not experience KEK (n=36). Meanwhile, in the group of pregnant women of non-risk age, 34.5% of mothers experienced KEK (n=29) and 65.5% did not experience KEK (n=55).

These results indicate that maternal age has a significant effect on the incidence of KEK, with a p-value of 0.033 indicating a very strong relationship. Pregnant women of risky age tend to be more susceptible to KEK, which may be influenced by biological factors such as decreased metabolism or the body's inability to utilize nutrients optimally, as well as socioeconomic factors that can affect nutritional intake. On the other hand, pregnant women of non-risky age are less likely to experience KEK, with 65.5% of them not experiencing KEK[11].

The results of this study are in line with research conducted by Saputri et al. (2025), showing that most pregnant women experiencing KEK were under 20 and over 35 years of age, with a percentage reaching 19.6%. Meanwhile, in the 20 to 35 age group, the percentage was 6.0%. From the analysis, a p-value of 0.034 was obtained. This indicates that pregnant women over 35 years of age have a 3.843 times greater risk of experiencing KEK compared to pregnant women between 20 and 35 years of age[12].

Another study conducted by Martinah et al. (2025) showed that of the 74 pregnant women in the at-risk age category, 54 (73.0%) experienced KEK and 20 (27.7%) did not experience KEK. The results of the chi-square test data analysis yielded a significance p-value of 0.000 < 0.05, which means that there is a relationship between age and the occurrence of KEK in pregnant women[13].

The mother's age is very important and has a significant impact on the health and well-being of the mother and her unborn child. Pregnant women under the age of 20 and over the age of 35 are considered to be in the high-risk category. These age groups are considered high-risk because, based on research, pregnant women in these age groups have a higher risk of experiencing KEK conditions[14].

Being too young or too old is often associated with high-risk pregnancies because age affects the reproductive system. Pregnant women who are vulnerable to KEK are those under the age of 20 and over the age of 35, because the safe age for reproduction is between 20 and 35 years old[13].

Thus, this study underscores the importance of more intensive monitoring of pregnant women in the high-risk age category, so that preventive measures and interventions can be taken earlier to prevent KEK. This is important to improve the health of pregnant women and reduce the risk of complications during pregnancy that can affect the health of the mother and fetus[14].

The Relationship Between Parity and Chronic Energy Deficiency in Pregnant Women

From the data obtained, the group of mothers with high parity (more than one birth) showed a higher prevalence of KEK. A total of 58.8% of mothers with high parity experienced KEK, while 41.3% did not experience KEK. On the other hand, in the group of mothers with low parity (mothers who were pregnant for the first time), only 25.6% experienced KEK, while 74.4% did not experience KEK. This shows that mothers with high parity are more at risk of experiencing KEK than pregnant mothers with low parity.

The results of statistical tests using the chi-square test obtained a p-value of 0.000 (<0.05). This means that there is a relationship between parity and the occurrence of chronic energy deficiency (CED) in pregnant women in the working area of the Sawa Community Health Center. In pregnant women with high parity, the body may already be experiencing fatigue or a lack of nutritional reserves due to previous pregnancies, making them more susceptible to CED. In addition, mothers with high parity may also have a heavier socioeconomic burden, such as having more children to care for, which worsens their nutritional status.

The results of this study are in line with research conducted by Siagian et al. (2024), showing that 34 (21.9%) pregnant women were classified as high-risk parity, including 32 (20.6%) pregnant women who did not experience KEK and a minority of 2 (1.3%) who experienced KEK. Furthermore, there were 121 pregnant women in the non-risk parity category, with 20 of them (12.9%) experiencing KEK, while the majority (65.2%) of pregnant women were normal or did not experience KEK. The results of data analysis using the chi-square test obtained a p-value of 0.045, so it can be concluded that there is a relationship between the parity variable and KEK in pregnant women[15].

Another study conducted by Muliani et al. (2024) showed that respondents with low parity were less likely to experience KEK, with 93.3% not experiencing KEK compared to 90.0% who did. The Chi Square test results showed no relationship between parity and the incidence of KEK in pregnant women (p-value = 0.040)[16]

Frequent pregnancies can be a contributing factor to KEK in pregnant women. Primigravida, or women who are pregnant for the first time, have a higher risk of KEK because mothers tend to not understand the importance of nutrients during pregnancy. A multiparous mother, or a mother who has given birth more than once, can also experience KEK in subsequent pregnancies if she does not pay close attention to her needs[17]

According to Yani et al. (2024), parity is included in the high-risk factors in pregnancy, specifically multiparity, which can cause conditions that affect the optimization of the mother and fetus during pregnancy. It can be concluded that parity of no more than 4 does not pose a risk of complications. In addition, a small number of primiparous mothers experienced malnutrition and severe malnutrition. It is known that low parity can also lead to malnutrition if the mother is under 20 or over 35 years of age[18]

Thus, the results of this study indicate that parity is closely related to the incidence of KEK, and mothers with high parity need to receive more attention regarding their nutritional status and health during pregnancy. Improving nutritional monitoring and education programs for pregnant women with high parity is very important to prevent KEK and complications that can endanger the health of the mother and fetus.

CONCLUSION

Based on the results of the research that has been conducted, the author can conclude that there is a relationship between maternal age and parity with the occurrence of chronic energy deficiency (CED) in pregnant women in the working area of the Sawa Community Health Center in North Konawe Regency.

It is recommended that pregnant women increase their knowledge and awareness of the importance of nutrition during pregnancy. It is important to consume a varied and nutritionally balanced diet to meet the energy and protein needs of the mother and fetus, especially if experiencing nausea or a decreased appetite. In addition, it is hoped that future researchers can investigate variables such as initial nutritional status, daily food intake, and physiological conditions such as hyperemesis gravidarum.

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